

WHAT IS CLAIMED IS:

1 1. A method for preparing LXR ligands on a solid support, said
2 method comprising:

3 (a) attaching an aniline derivative to said solid support to provide a
4 support-bound aniline derivative;

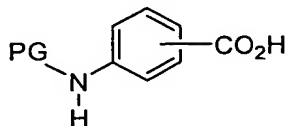
5 (b) contacting said support-bound aniline derivative with an aldehyde or
6 ketone under reductively aminating conditions to provide a support-bound substituted
7 aniline derivative; and

8 (c) contacting said support-bound substituted aniline derivative with an
9 acylating agent to provide an LXR ligand on said solid support.

1 2. A method in accordance with claim 1, further comprising:

2 (d) removing said LXR ligand from said solid support.

1 3. A method in accordance with claim 1, wherein said aniline
2 derivative has the formula:



3 wherein PG is a protecting group, and said method further comprises a step between steps
4 (a) and (b) of removing said protecting group.

1 4. A method in accordance with claim 1, wherein said aldehyde or
2 ketone of step (b) is selected from the group consisting of an optionally substituted (C_1 -
3 C_8)alkyl aldehyde and an optionally substituted dialkylketone.

1 5. A method in accordance with claim 1, wherein said aldehyde or
2 ketone of step (b) is selected from the group consisting of optionally substituted aryl
3 aldehyde and a ketone having the formula $\text{R}^3-\text{C}(\text{O})-\text{R}^4$

4 wherein R^3 and R^4 are members each independently selected from the
5 group consisting of optionally substituted aryl, optionally substituted heteroaryl,
6 optionally substituted arylalkyl, optionally substituted heteroarylalkyl and optionally
7 substituted alkyl.

6. A method in accordance with claim 1, wherein said acylating agent has the formula:



wherein

R^1 is a member selected from the group consisting of optionally substituted (C_8-C_{18})bicycloalkyl, optionally substituted (C_8-C_{18})tricycloalkyl, optionally substituted (C_8-C_{18})heterobicycloalkyl and optionally substituted (C_8-C_{18})heterotricycloalkyl; and

Y is a member selected from the group consisting of a carboxylic acid, a carboxylate ester, a carboxylic acid chloride and other activated forms of carboxylic acids.

7. A method in accordance with claim 1, wherein said solid support is selected from the group consisting of 4-(bromomethyl)phenoxymethyl polystyrene, Merrifield resin, Rink amide resin and Sieber resin.

8. A method in accordance with claim 4, wherein said acylating agent has the formula:

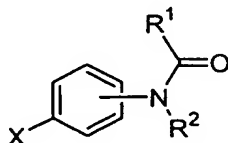


wherein

R^1 is a member selected from the group consisting of optionally substituted (C_8-C_{18})bicycloalkyl, optionally substituted (C_8-C_{18})tricycloalkyl, optionally substituted (C_8-C_{18})heterobicycloalkyl and optionally substituted (C_8-C_{18})heterotricycloalkyl; and

Y is a member selected from the group consisting of a carboxylic acid, a carboxylate ester, a carboxylic acid chloride and other activated forms of carboxylic acids.

9. A method in accordance with claim 2, wherein said LXR ligands have the formula:



4 wherein

5 R^1 is a member selected from the group consisting of optionally substituted (C_8 -
6 C_{18})bicycloalkyl, optionally substituted (C_8 - C_{18})tricycloalkyl, optionally
7 substituted (C_8 - C_{18})heterobicycloalkyl and optionally substituted (C_8 -
8 C_{18})heterotricycloalkyl;

9 R^2 is a member selected from the group consisting of optionally substituted (C_1 -
10 C_8)alkyl, optionally substituted aryl, optionally substituted heteroaryl,
11 optionally substituted arylalkyl and optionally substituted heteroarylalkyl;
12 and

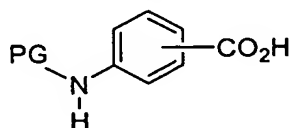
13 X is a member selected from the group consisting of $-CO_2R^{11}$, $-CH_2OR^{11}$,
14 $-C(O)R^{11}$, $-C(O)NR^{11}R^{12}$ and $-CH_2NR^{11}R^{12}$, wherein R^{11} and R^{12} are each
15 members independently selected from the group consisting of hydrogen
16 and optionally substituted (C_1 - C_8)alkyl.

1 10. A method in accordance with claim 9, wherein

2 R^1 is a member selected from the group consisting of optionally
3 substituted optionally substituted tricyclo[3.3.1.1^{3,7}]decanyl, optionally substituted
4 bicyclo[3.2.1]octanyl, optionally substituted bicyclo[5.2.0]nonanyl,
5 bicyclo[4.3.2]undecanyl, optionally substituted tricyclo[2.2.1.0¹]heptanyl,
6 tricyclo[5.3.1.1¹]dodecanyl, optionally substituted tricyclo[5.4.0.0^{2,9}]undecanyl,
7 optionally substituted tricyclo[5.3.2.0^{4,9}]dodecanyl, optionally substituted
8 tricyclo[4.4.1.1^{1,5}]dodecanyl and optionally substituted tricyclo[5.5.1.0^{3,11}]tridecanyl
9 group.

1 11. A method in accordance with claim 9, wherein R^1 is a substituted
2 or unsubstituted adamantyl group.

1 12. A method in accordance with claim 1, wherein said solid support is
2 selected from the group consisting of a 4-(bromomethyl)phenoxymethyl polystyrene and
3 Merrifield resin; said aniline derivative has the formula:



wherein PG is a protecting group, and said method further comprises a step between steps (a) and (b) of removing said protecting group; said aldehyde or ketone of step (b) is selected from the group consisting of a optionally substituted (C₁-C₅)alkyl aldehyde or ketone; and said acylating agent of step (c) has the formula:



wherein

R¹ is a member selected from the group consisting of optionally substituted(C₈-C₁₈)bicycloalkyl, optionally substituted(C₈-C₁₈)tricycloalkyl, optionally substituted(C₈-C₁₈)heterobicycloalkyl and optionally substituted(C₈-C₁₈)heterotricycloalkyl; and

Y is a member selected from the group consisting of a carboxylic acid, a carboxylate ester, a carboxylic acid chloride and other activated forms of carboxylic acids.

13. A method for preparing LXR ligands on a solid support, said method comprising:

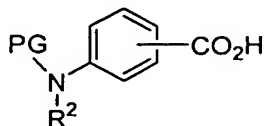
(a) attaching a substituted aniline derivative to said solid support to provide a support-bound substituted aniline derivative; and

(b) contacting said support-bound substituted aniline derivative with an acylating agent to provide an LXR ligand on a solid support.

14. A method in accordance with claim 13, further comprising:

(c) removing said LXR ligand from said solid support.

15. A method in accordance with claim 13, wherein said substituted aniline derivative has the formula:



wherein

PG is a protecting group;

R² is a member selected from the group consisting of optionally substituted(C₁-C₈)alkyl, optionally substituted aryl and optionally substituted heteroaryl; and

9 said method further comprises a step between steps (a) and (b) of removing said
10 protecting group.

1 16. A method in accordance with claim 13, wherein said acylating
2 agent has the formula:



4 wherein

5 R¹ is a member selected from the group consisting of optionally substituted(C₈-
6 C₁₈)bicycloalkyl, optionally substituted(C₈-C₁₈)tricycloalkyl, optionally
7 substituted(C₈-C₁₈)heterobicycloalkyl and optionally substituted(C₈-
8 C₁₈)heterotricycloalkyl; and

9 Y is a member selected from the group consisting of carboxylic acid, carboxylate
10 ester, carboxylic acid chloride and activated forms of carboxylic acids.

1 17. A method in accordance with claim 13, wherein said solid support
2 is selected from the group consisting of a 4-(bromomethyl)phenoxyethyl polystyrene,
3 Merrifield resin, Rink amide resin and Sieber resin.

1 18. A method in accordance with claim 15, wherein said acylating
2 agent has the formula:

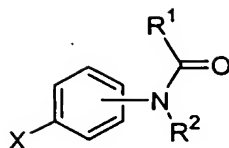


4 wherein

5 R¹ is a member selected from the group consisting of optionally substituted (C₈-
6 C₁₈)bicycloalkyl, optionally substituted (C₈-C₁₈)tricycloalkyl, optionally
7 substituted (C₈-C₁₈)heterobicycloalkyl and optionally substituted (C₈-
8 C₁₈)heterotricycloalkyl; and

9 Y is a member selected from the group consisting of a carboxylic acid, a
10 carboxylate ester, a carboxylic acid chloride and other activated forms of
11 carboxylic acids.

1 19. A method in accordance with claim 14, wherein said LXR ligands
2 have the formula:



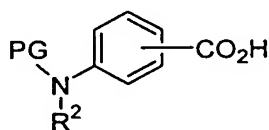
wherein

R^1 is a member selected from the group consisting of optionally substituted (C_8 - C_{18})bicycloalkyl, optionally substituted (C_8 - C_{18})tricycloalkyl, optionally substituted (C_8 - C_{18})heterobicycloalkyl and optionally substituted (C_8 - C_{18})heterotricycloalkyl;

R^2 is a member selected from the group consisting of optionally substituted (C_1 - C_8)alkyl, optionally substituted aryl and optionally substituted heteroaryl;
and

X is a member selected from the group consisting of $-CO_2R^{11}$, $-CH_2OR^{11}$, $-C(O)R^{11}$, $-C(O)NR^{11}R^{12}$ and $-CH_2NR^{11}R^{12}$, wherein R^{11} and R^{12} are each members independently selected from the group consisting of hydrogen and optionally substituted (C_1 - C_8)alkyl.

20. A method in accordance with claim 13, wherein said substituted aniline derivative has the formula:



wherein

PG is a protecting group;

R^2 is a member selected from the group consisting of optionally substituted (C_1 - C_8)alkyl, optionally substituted aryl and optionally substituted heteroaryl;
and

said method further comprises a step between step (a) and (b) of removing said protecting group; and said acylating agent has the formula:



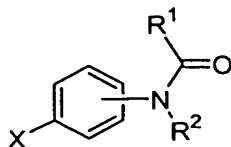
wherein

R^1 is a member selected from the group consisting of optionally substituted (C_8 - C_{18})bicycloalkyl, optionally substituted (C_8 - C_{18})tricycloalkyl, optionally

substituted (C₈-C₁₈)heterobicycloalkyl and optionally substituted (C₈-C₁₈)heterotricycloalkyl; and

Y is a member selected from the group consisting of carboxylic acid, carboxylate ester, carboxylic acid chloride and activated forms of carboxylic acids.

21. A combinatorial library comprising compounds of the formula



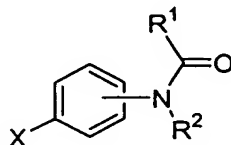
wherein

R¹ is a member selected from the group consisting of optionally substituted (C₈-C₁₈)bicycloalkyl, optionally substituted (C₈-C₁₈)tricycloalkyl, optionally substituted (C₈-C₁₈)heterobicycloalkyl and optionally substituted (C₈-C₁₈)heterotricycloalkyl;

R² is a member selected from the group consisting of optionally substituted (C₁-C₈)alkyl, optionally substituted aryl and optionally substituted heteroaryl;
and

X is a member selected from the group consisting of -CO₂R¹¹, -CH₂OR¹¹, -C(O)R¹¹, -C(O)NR¹¹R¹² and -CH₂NR¹¹R¹², wherein R¹¹ and R¹² are each members independently selected from the group consisting of a solid support, hydrogen and optionally substituted (C₁-C₈)alkyl.

22. A method for synthesizing a combinatorial library comprising compounds of the formula:



wherein

R¹ is a member selected from the group consisting of optionally substituted (C₈-C₁₈)bicycloalkyl, optionally substituted (C₈-C₁₈)tricycloalkyl, optionally substituted (C₈-C₁₈)heterobicycloalkyl and optionally substituted (C₈-C₁₈)heterotricycloalkyl;

9 R² is a member selected from the group consisting of optionally substituted (C₁-
10 C₈)alkyl, optionally substituted aryl and optionally substituted heteroaryl;
11 and

12 X is a member selected from the group consisting of -CO₂R¹¹, -CH₂OR¹¹,
13 -C(O)R¹¹, -C(O)NR¹¹R¹² and -CH₂NR¹¹R¹², wherein R¹¹ and R¹² are each members
14 independently selected from the group consisting of hydrogen and optionally substituted
15 (C₁-C₈)alkyl; said method comprising:

16 (a) attaching an aniline derivative to a solid support to provide a support-
17 bound aniline derivative;

18 (b) contacting said support-bound aniline derivative with an aldehyde or
19 ketone under reductively aminating conditions to provide a support-bound substituted
20 aniline derivative; and

21 (c) contacting said support-bound substituted aniline derivative with an
22 acylating agent to provide an LXR ligand on said solid support.